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# Prepare for the opportunities open only to today's Registered Professional Engineer

## Eminence—Open Door to Registration

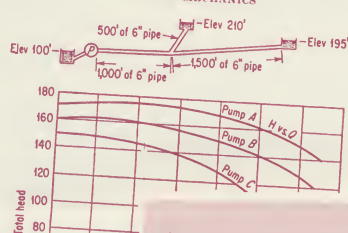
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## FLUID MECHANICS



## ALTERNATE

TABLE 14-1. INDUCTION MOTOR  
Approximate, average data on normal-torque squirrel-cage induction motor  
440 volts, 60 cycles 3, p.

Motor hp	Syn-chronous rpm	Efficiency		Power factor	
		Full load	1/2 load	Full load	1/2 load
5	3,600	83.5	81.0	0.86	0.71
	1,800	83.5	81.0	0.86	0.73
	1,200	82.5	80.0	0.82	0.66
	900	82.0	79.0	0.76	0.58
10	3,600	85.0	82.5	0.88	0.75
	1,800	85.0	82.5	0.88	0.77
	1,200	84.5	82.0	0.84	0.72
	900	84.0	81.0	0.80	0.65
20	1,800	86.5	84.0	0.89	0.78
	1,200	86.5	84.0	0.86	0.75
	900	85.0	82.5	0.84	0.70
	600	84.5	82.0	0.74	0.60
30	1,800	87.5	85.0	0.90	0.80
	1,200	87.5	85.0	0.88	0.78

## Stability of Structures

shall ascertain that the resultant pier third.

$$R_v = 11,030 + 6300 + 10,100 = 27,430$$

$$\Sigma M_E = 86,760$$

$$z = \frac{\Sigma M_E}{R_v} = \frac{86,760}{27,430} = 3.2 \text{ ft} > 3 \text{ ft} \quad \text{OK}$$

Example 12-4. Determine whether the concrete retaining wall in Fig. 12-5 is safe against overturning. Use 100 pcf for the weight of earth and 30° for the angle of repose.

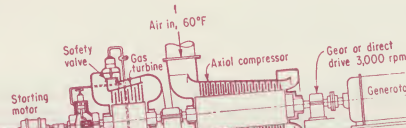


5.11 Engineering Economics and Business Relations  
grinders, and tools monthly. All fences, bridges, walls, fire escapes, manholes, and safety belts every six months. The next best thing to a profit is to reduce the loss. At half capacity, a loss of \$111,000 - \$96,000 = \$15,000 will occur. Reduction of this loss is

Cost of 1,200 items = \$168,000  
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## 164 MECHANICAL ENGINEERING FOR P.E. EXAMINATIONS

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"Pennsylvania Requires P.E.'s to Plan Major Dams"

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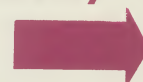
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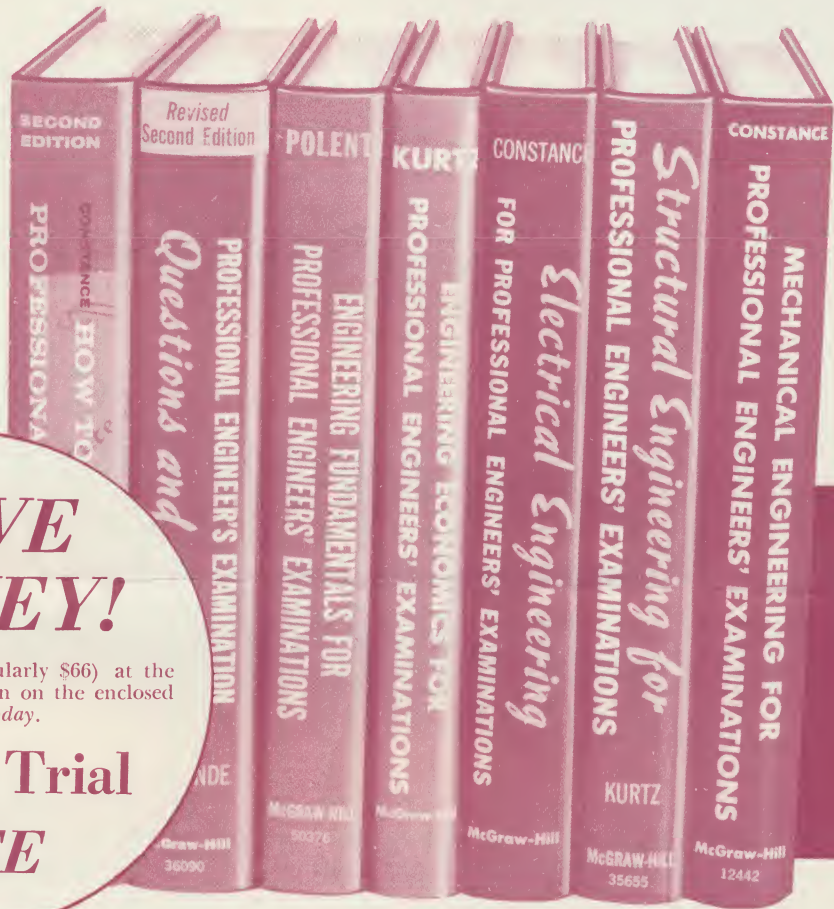


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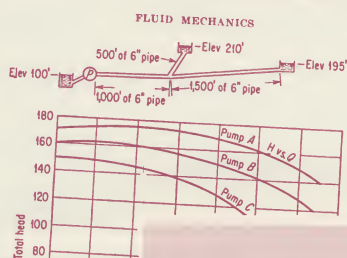
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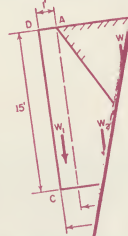
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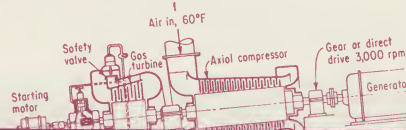
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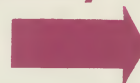
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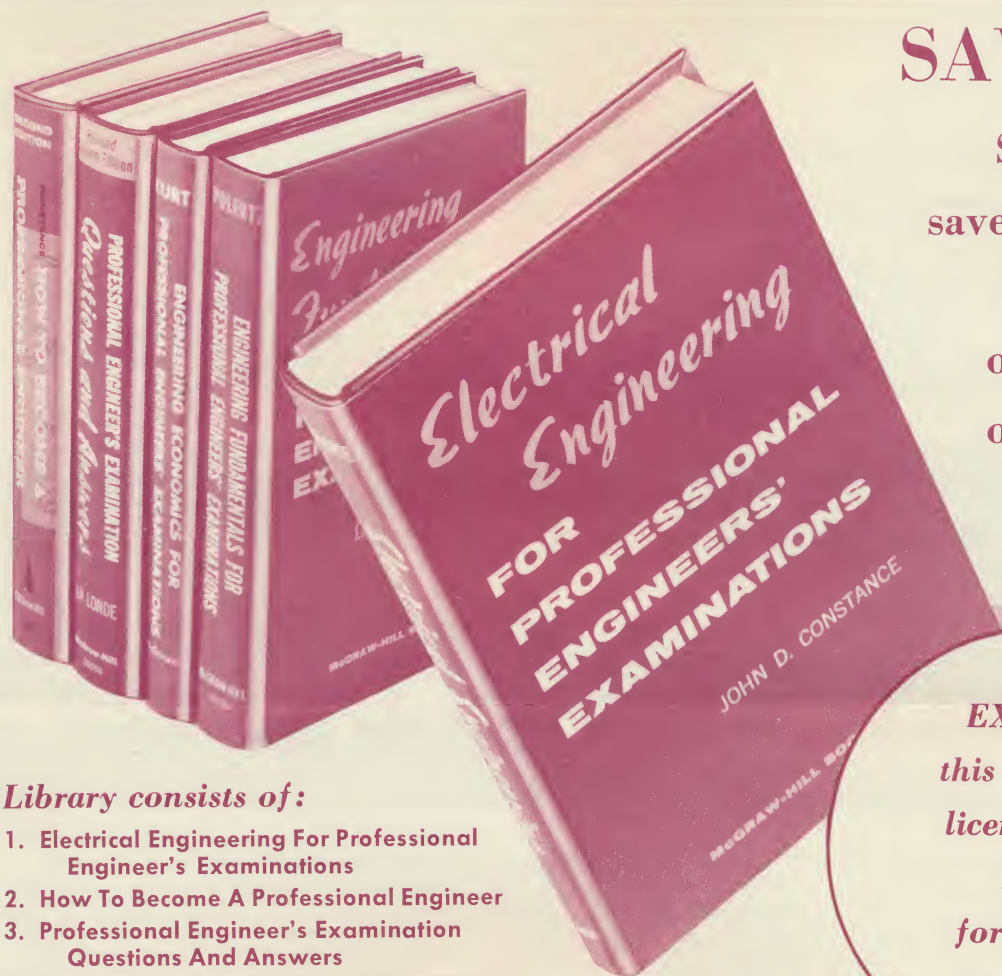
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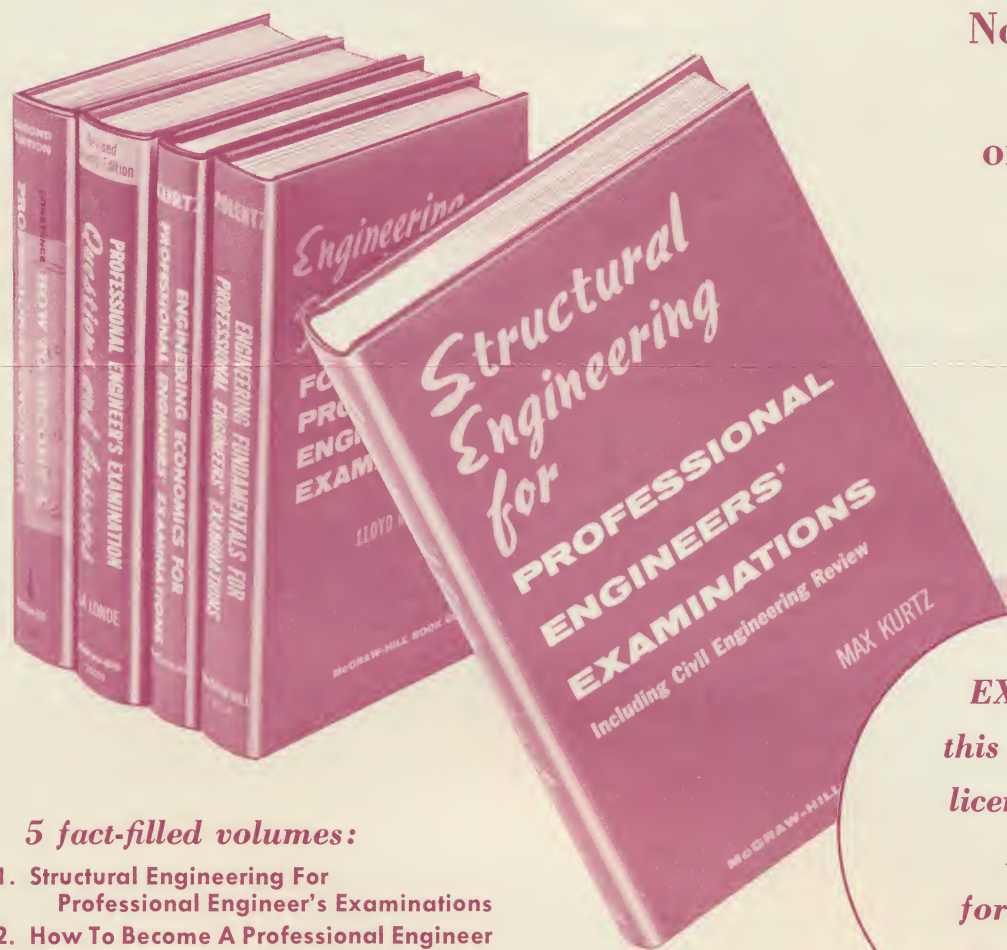
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